

REMARKS

I. Claim Rejections

A. Section 112 Rejections

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The basis is that essential steps are omitted. The identified steps are calculating a ratio of P-wave amplitude to R-wave amplitude and determining when the ratio and pacing threshold meet certain criteria. In view of the amendments to claim 1 to specify mapping locations within the identified interventricular septal zone according to a ratio of measured P-wave amplitude to R-wave amplitude and a pacing threshold measurement, Applicant submits that the rejection is obviated. As to this recitation, specific operations of calculating and determining are not essential for definiteness of the claim.

B. Section 103 Rejections

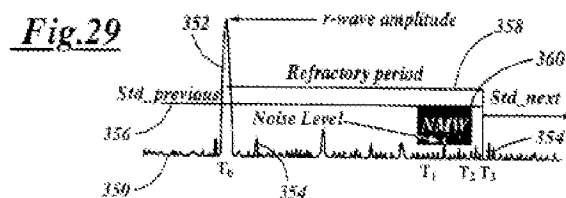
Claims 1-6 are rejected as being obvious over Salo et al. (US 5,728,140) in view of Gryzwa et al. (US 6,473,649). Claim 7 is rejected on Salo, Gryzwa and Ding et al. (US Publication 2003/0105492).

Salo is relied upon for a disclosure of placing an electrode in an interventricular septal zone. Salo is admitted to not disclose measuring a P-wave amplitude and an R-wave amplitude at different locations. Therefore, in relation to amended claim 1, Salo fails to disclose the mapping step. Importantly, this difference is underscored by the fact that Salo is directed to a method of providing stimulation to the left ventricle without a need for implanting a pacing lead in the left ventricular chamber. To accomplish this, Salo discloses implanting an electrode in the interventricular septal zone at a single location. Salo does not, as the office action contends in paragraph 9, position electrodes at "one or more positions within the a septal zone."

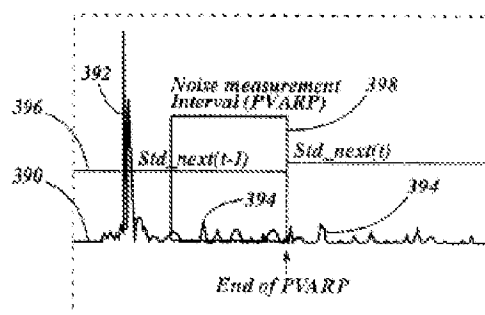
Gryzwa is relied upon as teaching the sensing of P-wave amplitude and R-wave amplitude at different locations, measuring a pacing threshold, and determining a ratio of amplitudes. Applicant respectfully disagrees with the characterization of Gryzwa.

Gryzwa concerns capture verification wherein an electrocardiogram signal is obtained to determine whether a stimulation pulse evokes a response. The detection threshold is adjusted based upon measured noise. The office action specifically points to disclosures in Gryzwa concerning Figs. 29 and 31.

As shown in Fig. 29 and described in columns 21 and 22, after a detected R-wave, which exceeds a threshold 356, a Refractory period 358 is initiated. The threshold blocks noise 354. During the refractory period, the threshold is reduced during the time period "NMW." During NMW, measurements are made of noise signals that exceed the reduced threshold as indicated by the spike "Noise Level." The threshold is adjusted based on the detected noise level. The operation of Fig. 29 is the ventricular autosense mode.



The operation related to Fig. 31 is the atrial autosense mode and is similar to the operation diagrammed in Fig. 29.



Gryzwa does not perform any sort of mapping of the heart at various potential implant sites. Gryzma merely illustrates conventional operation of a pacemaker wherein evoked P-wave and R-wave responses are detected by the sense amplifiers based on detection thresholds at locations where the electrode is already implanted. Gryzma merely adds to the conventional operation a time window following the responses during which noise levels present in the sense amplifier channels are measured. The whole of the characterization of Gryzwa found on page 5 of the office action as it relates to a "ratio" of P-wave amplitude to R-wave amplitude is a contrived analysis to support an attempt to formulate a mere verbal correspondence with the language of original claim 1. There is no express or inherent disclosure in Gryzwa of using the ratio of P-wave amplitude to R-wave amplitude and pacing threshold as an indication of a site as being optimum for implant of an electrode within an interventricular septal zone. Gryzwa clearly fails to provide any teachings whatsoever as to the mapping of potential electrode implant sites within an interventricular septal zone.

A combination of Salo and Gryzwa fails to render claims 1-6 unpatentable, particularly in view of the amendment to claim 1, which specifies a mapping step in determination of potential electrode implant sites within an interventricular septal zone. Salo shows an electrode implanted at a single site in an interventricular septal zone without any indication of mapping to determine how to select the implant site. Gryzwa merely concerns setting capture thresholds based upon measured noise within the sense amplifier channels.

The rejection of claims 1-6 should be withdrawn. Moreover, the rejection of claim 7, which is dependent upon the analysis of Salo and Gryzwa as applied against claim 1, also necessarily fails and should be withdrawn. Yet further, new dependent claim 8 is patentable over Salo and Gryzwa.

II. Miscellaneous

The objections to the specification have been addressed and substitute paragraphs are being submitted.

The objections to the drawings concern only a minor change of reference number "2" to "2A" in relation to the atrioventricular node. Applicant will submit a substitute formal drawing making that change in due course.

III. Conclusion

Applicant submits that the pending claims are allowable. An early action to that effect is courteously solicited.

Respectfully submitted,

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Date

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